BASIS FOR THE AMENDMENT

Claims 1, 3-9, 13-22 are active in the present application. Claims 2 and 10-12 have been canceled. Claims 19-22 are new claims. Support for new Claims 19 and 20 is found n the Examples on pages 28 and 29. Support for new Claims 21 and 22 is found on page 11, lines 8-16. No new matter is added.

REQUEST FOR RECONSIDERATION

Applicants thank Examiner Dodson for the helpful and courteous discussion of July 31, 2003. During the discussion Applicants' U.S. representative presented arguments that none of the prior art references relied upon by the Examiner disclose all of the present claim elements.

The presently claimed invention is drawn to a deodorant which must contain a organic dibasic acid having a difference in the first acid dissociation index and the second acid dissociation index of 1.7 or more at 25 °C. Further, the second acid dissociation index must be from 6 to 8.

Applicants have shown that such organic dibasic acids are particularly effective as deodorants. The deodorizing effect of deodorants containing organic dibasic acids meeting the claim limitations are compared against organic acids which do not meet the claim limitations on pages 29-31 of the specification. For example, the deodorizing effect of cyclohexane-1,2-dicarboxylic acid which has a first acid dissociation index of 4.25 and a second acid dissociation index of 6.74 and 5-norbornene-2,3-dicarboxylic acid which has a first dissociation index of 4.16 and a second acid dissociation index of 6.23 are compared with lauryl methacrylate which is a monobasic organic acid and succinic acid which is an organic dibasic acid having a first acid dissociation index of 4.00 and a second acid dissociation index of 5.25 (succinic acid therefore has a difference in first and second dissociation indices of less than 1.7 and does not meet the present claim limitations). In Table 3 on page 30 the deodorizing effect of the invention deodorant against the comparative examples is presented. As is evident from the Table (reproduced below for convenience) the deodorizing effect of deodorants which meet the claim limitations is substantially greater than the deodorizing effect for the comparative examples.

Table 3

Deodorant base agent	Deodorization rate
Deodorant base agent 1	79%
Deodorant base agent 2	88%
Blank 1	0%
Blank 2	9%
Comparative Example 1 (lauryl methacrylate)	10%
Comparative Example 2 (succinic acid)	33%

Deodorizing effect is also measured against a sulfur containing material (a mercaptan) in Example 2 on page 31. Table 4 (reproduced below for convenience) demonstrates that deodorants containing organic dibasic acids meeting the present claim limitations are able to substantially reduce the mercaptan odor whereas the comparative examples are unable to reduce the odor.

Table 4

Deodorant base agent	Evaluation of odor
Deodorant base agent 1	2
Deodorant base agent 2	1
Blank 1	3
Blank 2	3
Comparative Example 1	3
Comparative Example 2	3

Initial odor = 3
No odor = 0

Example 3 on page 32 demonstrates the deodorizing effect of the claimed deodorant on lower fatty acid odors. As is shown in Table 5 on page 32 (reproduced below for convenience), deodorants meeting the claim limitations are able to substantially reduce the odor evaluation whereas the comparative examples are only able to lower the odor to a lesser degree.

Table 5

Deodorant base agent	Evaluation of odor
Deodorant base agent 1	1
Deodorant base agent 2	1
Blank 1	3
Blank 2	3
Comparative Example 1	2
Comparative Example 2	2

Applicants have therefore demonstrated that deodorants containing organic dibasic acids having a difference between a first acid dissociation index and a second acid dissociation index of 1.7 or more and wherein the second acid dissociation index is from 6 to 8 are able to provide significantly better deodorizing performance in comparison to compounds that are not dibasic acids or compounds where the difference between the first and second dissociation acid indexes is less than 1.7 or the second acid dissociation constant is not within the range of 6-8.

Claims 1, 3, 5, 8, 9, 13-15, 17 and 18 were rejected as anticipated under 35 U.S.C. § 102(b) in view of patents to Ueda (U.S. 4,919,925) and Thomas (U.S. 4,405,354).

Applicants respectfully traverse the rejections in view of the fact that neither the Ueda or the Thomas patent disclose all of the present claim limitations.

Ueda describes deodorant compositions that contain a Diels-Alder reaction-type adduct of an α,β-unsaturated dicarboxylic acid anhydride and an olefin, or a derivative of the adduct of the active ingredient (see Abstract). The active ingredient is further described in the specification (see column 1, lines 54-59).

Anhydrides are not organic dibasic acids and do not meet the present claim limitation for an organic dibasic acid. In the examples of the Ueda patent a typical Diels-Alder reaction product is disclosed (3-methyltetrahydrophthalic anhydride). The chemical structure of this material is shown on the attached sheet labeled 3-methyltetrahydrophthalic anhydride. This chemical compound does not contain acid groups. Although it may be possible to convert an anhydride to a diacid by treating the anhydride with a strong base, no such treatment is suggested or disclosed in the Ueda reference.

Ueda discloses in Example 1 citric acid and malic acid as components in a deodorant composition. Neither citric acid nor malic acid meets the present claim limitations (see further discussion below).

Applicants further submit that the disclosure of Ueda does not render the presently claimed invention obvious on the grounds that the Ueda compositions are different from the claimed compositions. For example, Ueda produces films containing materials such as polyethylene (see Table 3 in column 6). Applicants submit that an organic dibasic acid is not homologous to an anhydride and further may be less compatible with the highly non-polar environment presented by a polyethylene matrix.

The Thomas patent discloses:

> Odor control composition of the present invention utilizes monobasic salts of dibasic acids and monobasic or dibasic salts of tribasic acids, etc. and mono-, or di-, or tri-etc. basic acids, as the ammonia control agent. These include the oxoacids of sulfur and phosphorus, alkali metal

monobasic salts of the oxoacids of sulfur, dibasic salts of the oxoacids of phosphorus and alkaline earth dibasic salts of the oxoacids of sulfur and phosphorus.

In Table 1 of column 4 of the reference a number of ammonia control compounds are disclosed. None of these materials are organic dibasic acids, in fact they are all materials derived from inorganic acids. In column 3, lines 65-67 Thomas discloses that organic acids may also form a part of the prior art composition. Organic acids are disclosed in column 4, lines 12-15; Table 3 in column 6; and Claims 1 and 12. The complete list of organic acids disclosed in Thomas is as follows: formic acid, acetic acid, lactic acid, ascorbic acid, propionic acid, citric acid, ethylenediamine tetraacetic acid, ascorbic acid, benzoic acid, maleic acid, malonic acid, succinic acid, malic acid, adipic acid, and fumaric acid. None of the organic acids disclosed in Thomas meet the present claim limitations. For example formic acid, acetic acid, propionic acid, benzoic acid, and lactic acid only have a single acid group and do not meet the requirement of a dibasic acid. Citric acid and ethylene diamine tetraacetic acid (EDTA) contain three and four acid groups respectively and do not meet the present claim limitation of a dibasic organic acid. Even if such compounds are considered dibasic acids because they contain at least two acid groups, they do not meet the limitation that the second acid dissociation index is between 6 and 8 and the difference between the first and second dissociation constants is at least 1.7 (see discussion below).

The only dibasic organic acids in Thomas are maleic acid, malonic acid, succinic acid, malic acid, adipic acid and fumaric acid. However, none of these organic dibasic acids meet the present claim limitations, namely that the difference in the first and second dissociation acid indexes is at least 1.7 and the second acid dissociation index is from 6 to 8. The first and second acid dissociation indexes of each of these materials is presented in the Table below. The acid dissociation index information is obtained from "pKaBASE", version 1.0, pKa

Database for Organic Compounds, © 1995 Compudrug Chemistry Ltd. (see copy of User's Guide mast head page submitted concurrently herewith).

Acid	First Dissociation Index	Second Dissociation Index	Difference in First and Second Dissociation Index
Maleic	1.75	5.83	4.08
Malonic	2.65	5.28	2.63
Succinic	4.20	5.60	1.40
Malic	3.40	5.14	1.74
Adipic	4.26	5.03	0.77
Fumaric	3.02	4.38	1.36
Citric	3.09	4.75	1.66
EDTA	1.5	2.0	0.5

As is shown in the Table above none of the acids disclosed in Thomas meet the present claim limitations. As was described earlier, acids that meet the present claim limitations are able to provide superior deodorizing performance in comparison to acids that do not meet the claim limitations.

Applicants therefore respectfully submit that the present claims are novel and not obvious in view of the prior art references relied upon by the Examiner. Applicants respectfully request the withdrawal of the rejections and the passage of all now-pending claims to Issue.

An Information Disclosure Statement was filed together with the filing of this application on January 23, 2002. A date-stamped filing receipt evidencing the timely submission of the IDS is attached herewith. A signed, dated and initialed copy of the form

PTO-1449 submitted with the IDS was not returned with the Office Action of July 8, 2003. Applicants respectfully request the Examiner return a signed, dated and initialed copy of the form PTO-1449 with the next communication from the Office. A copy of the PTO-1449 is attached herewith for the Examiner's convenience.

Applicants submit concurrently herewith an Information Disclosure Statement. Applicants respectfully request the Examiner acknowledge the consideration of the references provided on the form PTO-1449 by returning a signed, dated and initialed copy of the PTO-1449 with the next communication from the Office.

Respectfully submitted,

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Respectfully Submitted,

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User's Guide

pKaBASE for Windows

version 1.0

pK_a *Database for Organic Compounds*